ABSTRACT OF THE DISCLOSURE

A Viterbi decoding system interprets bits in received QAM constellations as many-valued parameters rather than binary valued parameters. It performs the Viterbi algorithm

5   using these many-valued parameters to provide results superior to hard decision decoding. Rather than applying a hard 0-1 function to the QAM data, the system uses a non-stepped linear or curved transfer function to assign values to the bits. In another aspect, a system differentiates between data bits based on their estimated reliability, giving more emphasis to decoding reliable bits than unreliable bits using any of a variety of techniques. By

10   differentiating between god and bad bits and de-emphasizing or ignoring unreliable bits, the system can provide a significant reduction in uncorrectable errors and packet loss.